FIG. 17 is a perspective view showing the manner in which the four main bodies in FIG. 16 are joined by four connecting members,

FIG. 18 is a perspective view showing the manner in which five main bodies are joined by connecting members and fiber elements to form an open-sided cube,

FIG. 19 is a plan view of a support element forming part of the invention, and

FIG. 20 is an elevational view showing the assembly of the supporting element with a main body.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring first to FIG. 1, wherein are best shown the general features of the invention, the construction system, indicated generally by the reference numeral 10, is shown in use in displaying items 12 with a sales person 11 in attendance. The display structure shown is generally pyramidal in shape and accessible from all sides, but it will be understood that the specific form of the structure may take any one of a large number of forms.

FIG. 2 shows in perspective the important elements of the construction system including a main body 13 and a connecting member 23. The main body 13, whose details are best shown in FIGS. 3, 4, and 5, is shown as being plate-like in nature and in the form of a square having four sides 14, 15, 16, and 17. These sides are provided, respectively, with triangular recesses 18, 19, 21, and 22. The connecting member 23, whose details are shown in FIGS. 6 and 7, is also shown as being plate-like in configuration and in the shape of a somewhat smaller square with beveled corners. Extending diagonally from one corner to an opposite corner is a hinge 24 which serves to divide the connecting member into two triangular parts 25 and 26.

In FIGS. 3, 4, and 5 it can be seen that the main body 13 is formed of two-spaced parallel sheets 31 and 32, between which is sandwiched a cruciform intermediate element 33. Each sheet is formed of a thin material formed as two layers of cardboard between which is sandwiched a layer of resilient foamed plastic; this material is available commercially under the name "FOAM COR" manufactured by Monsanto Company. The cruciform intermediate element 33 is made of two such sheets, so that the recesses 18, 19, 21, and 22 are twice as thick as a sheet. Because of the nature of the cruciform intermediate element 33, the recesses are triangular in shape and approximately the same size as each of the parts 25 and 26 of the connecting member 23.

Referring next to FIGS. 6 and 7, which show the details of the connecting member 23, it can be seen that the member is made of the same sheet material as the main body, that is to say, of two layers of cardboard with a layer of resilient foamed plastic sandwiched between them. The hinge 24 is formed by two scores 34 and 35 on opposite sides of the sheet. These scores tend to compress the foamed plastic layer and to provide fairly flexible bending about the hinge line, while increasing the stiffness of the connecting member in the transverse bending direction. It should be noted that the main body 13 is considerably larger than the connecting member 23, so that the recesses on the main body terminate on their respective sides a substantial distance from the corners, but, nevertheless, each recess is large enough to completely envelope one-half (a part 25 or 26) of the connecting member. It might be said that the cruciform intermediate element 33 could be formed by placing together two sheets that are the same size and shape as the outer sheets 31 and 32 and then removing from the center of each side a 45° triangle whose base lies on the side, but terminates a substantial distance from each end of the side.

FIGS. 19 and 20 show a support element 37 which is useful in connection with the construction system. It consists of an elongated sheet element made of the same sheet material as the connecting member 23 which a main rectangular portion having score lines 42, 43, 44, and 45 which define triangles at the ends of the same size as the triangular parts 25 and 26 of the connecting member. The score lines divide the intermediate portion into three square panels.

The operation and the advantages of the present invention are well illustrated in FIGS. 8–18. In general, the user is provided with a plurality of the main bodies 13 and of the connecting members 23; with these he is able to form a number of desirable supporting structures. In general, two main bodies 13 can be joined in line in the same plane by using two connecting members 13 with their hinge lines lying perpendicular to the sides of the main bodies which are being joined; this arrangement is shown in FIGS. 8 and 9. FIGS. 10 and 11 show the manner in which two main bodies 13 can be joined with their planes at an obtuse angle. In this case, two connecting members 23 are used but their hinge lines lie between and parallel to the adjacent two sides of the main bodies which are being joined. FIGS. 12 and 13 show the manner in which three main bodies are joined, two of them being joined together in the same plane and the third being joined at a right angle to the other two. In this case three connecting members are used. One of them is not bent and has its hinge line lying perpendicular to the sides of the main bodies which are to be joined in the same plane. The other two have their hinge lines extending in the opposite direction, that is to say, parallel to the edges of the main bodies which are being joined, so that two parts 25 and 26 are bent at a right angle. FIGS. 14 and 15 show the joining of three main bodies 13 at 120° to one another, making use of three connecting elements 23. The hinge line in all three connecting elements is parallel to the sides of the main bodies being joined, and each connecting member is bent at an angle of 120° with each triangular half inserted into one of the recesses of the main bodies. FIGS. 16 and 17 show the manner in which four main bodies 13 can be joined at right angles to one another to form a cross-shaped configuration. In this case four connecting members 23 are used, each one having its hinge line arranged vertically and lying between the edges of the main bodies which are to be joined. Each connecting member is bent at a right angle with its triangular parts 25 and 26 inserted into the recesses of immediately adjacent main bodies. FIG. 18 shows the manner in which five main bodies 13 can be joined by eight connecting members to form an open cube, preferably with the open side facing downwardly to provide an upper horizontal supporting surface. Because it is undesirable to bend two connecting members 23 together at a right angle in the same direction, only one connecting member is sued at each joint and the remainder of the recess is provided with a filler element 36 which is formed from the same foamed plastic sheet as the other elements and is in the shape of triangle of the same size and shape as the triangular parts 25 and 26 of the connecting members 23. This filler element 36 serves to hold the